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10/552,962	12/12/2006	Tamotsu Shikamori	9988.237.00	6684
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MCKENNA LONG & ALDRIDGE LLP 1900 K STREET, NW WASHINGTON, DC 20006				OSTERHOUT, BENJAMIN LEE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/552,962	SHIKAMORI ET AL.	
	Examiner	Art Unit	
	BENJAMIN OSTERHOUT	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 18 February 2010.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-56 is/are pending in the application.
 - 4a) Of the above claim(s) 46-56 is/are withdrawn from consideration.
- 5) Claim(s) 42-45 is/are allowed.
- 6) Claim(s) 1,3-8,11-22 and 25-41 is/are rejected.
- 7) Claim(s) 2,3,5,9,10,16,20,21,23,24 and 29 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 14 October 2009 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>20100222, 20090417, 20080611</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application
	6) <input type="checkbox"/> Other: _____ .

DETAILED ACTION

Election/Restrictions

1. Claims 46-56 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 18 February 2010.

Applicant's election with traverse of claims 1-45 in the reply filed on 18 February 2010 is acknowledged. The traversal is on the ground(s) that the current invention is that of a drum type washing machine which has a lift formed at an inner surface of the drum for agitation of laundry and that a person of ordinary skill in the art would not consider further adding a pulsator while the prior art teaches a top-loading washing machine which requires a pulsator for the agitation of laundry. This is not found persuasive because Examiner made a proper lack of unity of invention restriction wherein Examiner has found that the technical feature of a washing machine with pulsator may not be novel and Applicant has failed to distinguish the current invention from that of a top-loading washing machine.

The requirement is still deemed proper and is therefore made FINAL.

Specification

2. The abstract of the disclosure is objected to because it exceeds the 150 word limit. Correction is required. See MPEP § 608.01(b).

Claim Objections

3. Claim 3 is objected to because of the following informalities: "oiless" should be spelled as "oilless". Appropriate correction is required.
4. Claim 5 is objected to because of the following informalities: "grater" should be spelled as "greater". Appropriate correction is required.
5. Claim 16 is objected to because of the following informalities: the claim language is awkward and should be reworded. Appropriate correction is required.
6. Claim 29 is objected to because of the following informalities: the claim language is awkward and should be reworded. Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
8. Claims 20-21 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 20-21, claims 20-21 recite the limitation "the pulley" in line 3 of claim 20. There is insufficient antecedent basis for this limitation in the claim.

Further regarding claims 20-21, Applicant claims "the pulley", however, Applicant did not recite the claim limitation of "a pulley" in the dependent claim. However, claim 2

does recite the pulley and therefore claims 20 and 21 will be treated as depending upon said claim 2.

Regarding claim 25, Applicant claims "an SM45 group material", however, Applicant has not specifically stated the metes and bounds of the material from which the drum shaft may be formed. Applicant has not properly delineated the materials of the drum shaft, but has rather used terminology from an industrial material classification.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1 and 29-32 rejected under 35 U.S.C. 102(b) as being anticipated by European Patent Application EP 1,386,995 to Oae et al (Oae).

Regarding claim 1, Oae teaches a washing machine (which may be of the drum type which one of ordinary skill realizes is rotatable within the tub; paragraph 118, II. 3-6) with a tub (Fig. 1, part 2) wherein the tub has a wall portion for holding washing water and a securing a drive unit thereto (driving mechanism, Fig. 1, part 10) and a front side sloped upward at a predetermined angle from the ground; with a housing (Fig. 1, part 2) and front and rear suspension rods (Fig. 1, part 3 and 4); a pulsator (Fig. 1, part 7) which one of ordinary skill realizes is rotatably mounted within the tub; a driving

mechanism for the pulsator (Fig. 1, part 10) with dehydration shaft (hollow drum shaft, Fig. 1, part 6) wherein said shaft is hollow, passed through the tub, and realized by one of ordinary skill to be connected to the drum inside of the tub for transmission of driving power from a motor to the drum; pulsator shaft (Fig. 1, part 9) mounted to pass through the hollow of the drum shaft a having a fore end connected to the pulsator; a clutch (pulsator control means, Fig. 5, part 27) for transmitting the power from the motor (Fig. 1, part 8) to the pulsator and drum/tub; and wherein one of ordinary skill in the art would envisage the tub made of plastic as the selection of materials for a tub are well known in the art to be one of metal and plastic and also envisage a motor comprising a rotor, stator, and a bearing for supporting the hollow drum shaft, all connected to a rear portion of the tub/drum as such motors are commonplace in washing machines, especially of the induction variety.

Regarding claims 29-32, Oae teaches that the pulsator (Fig. 1, part 7) has washing fins at regular intervals on the main surface of the pulsator, formed as one body, wherein the washing fins include at least one slope surface with respect to a radial direction, and the main surface of the pulsator has a predetermined curvature (Fig. 1, part 7).

The claim language regarding claim 29, ll. 2-4, "so that the laundry hits the washing fin to increase friction when the laundry lifted up by the rotation of the drum drops, and making the laundry to move in back and forth" is regarded as intended use, does not provide further structural limitation, and will not be given patentable weight. Furthermore, the structure of Oae is capable of performing said intended use.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Application EP 1,386,995 to Oae et al (Oae) in view of U.S. Patent Application Publication No. 20030110816 to Chang.

Regarding claims 3-5, Oae is relied upon as above in claim 1. Oae does not teach that the pulsator shaft is supported on oilless bearings on a front side and a rear side thereof; that the at least one bearing for supporting the hollow drum shaft includes one on a front side, and the other on a rear side of the drum shaft; and that the bearings supporting the hollow drum shaft, the front side bearing of the drum shaft has a diameter greater than a diameter of the rear side bearing.

Chang teaches a washing machine (paragraph 3, ll. 1-3) wherein the shafts of the washing machine are supported on oilless bearings, at front and rear sides thereof, and wherein the front side bearings are of a greater diameter than the rear side bearings (paragraphs 50-51; Fig. 3, parts 22, near part 17 and near part 12).

Because both Oae and Chang teach washing machines with bearings, either inherently or explicitly, it would have been obvious to substitute the bearings of Oae with the bearings of Chang in order to achieve the predictable result supporting the shafts of the washing machine.

The claim language regarding claim 5, ll. 3-4, "for minimizing vibration of the drum during spinning, and making strength higher" is regarded as intended use, does not provide further structural limitations to the claim language, and will not be given patentable weight. Furthermore, the structure of Oae in view of Chang is capable of performing said intended use.

14. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Application EP 1,386,995 to Oae et al (Oae) in view of U.S. Patent Application Publication No. 20030110816 to Chang further in view of U.S. Patent No. 6,354,115 to Zahn.

Regarding claims 6-8, Oae in view of Chang is relied upon as above in claim 4. Oae in view of Chang does not teach that the washing machine further comprises a water seal in front of the front side bearing of the drum shaft; that the seal includes spring mounted therein for compressing the water seal; and wherein an outside portion

of the water seal is supported on a bearing housing or a shape of the rear wall of the tub.

Zahn teaches a tub seal assembly for a washing machine (col. 1, ll. 7-8) comprising a seal that protects the motor and bearings from water (claim 1) wherein a spring is used to provide a compressive force to compensate for wear (col. 1, ll. 65-67) and a portion of the seal is supported on the bearing housing and a portion of the rear wall of the tub (Fig. 3, part 42, see near parts 34 and 22).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the washing machine of Oae in view of Chang with the tub seal with spring and said seal sealing on a bearing housing and a portion of the rear wall of the tub as in Zahn in order to achieve the predictable result of protecting the motor and bearings from water.

15. Claims 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Application EP 1,386,995 to Oae et al (Oae) in view of U.S. Patent Application Publication No. 20030131636 to Lim et al. (Lim).

Regarding claim 11-13, Oae is relied upon as above in claim 1. Oae does not teach that the washing machine further comprises a rotor bushing between the drum shaft and the rotor; wherein the rotor bushing couples to the drum shaft and the rotor frame in a state the rotor bushing is positioned in rear or front of a rotor frame; an engagement portion at a center thereof for placing in, and engagement with the drum

shaft, and a coupling portion extended in a radial direction from a circumference of the engagement portion for coupling with the rotor frame.

Lim teaches direct drive washing machine (paragraph 2, II. 1-2) wherein a bushing (Fig. 6, part 36) is placed between the rotor (Fig. 6, part 32) and the first rotating shaft (drum shaft, Fig. 6, part 38); wherein said bushing couples to said shaft (Fig. 6, part 38) and rotor housing (rotor frame, Fig. 6, part 34) at a rear of the rotor frame and wherein said bushing includes an engagement portion (the portion that engages with the shaft) and a coupling portion that engages with the rotor housing/frame.

Therefore it would have been obvious to modify the washing machine of Oae by using the rotor bushing of Lim in order to couple the rotor to the drum shaft thereby allowing electro-mechanical rotation of the shafts of the washing machine.

Regarding claims 14-16, Oae in view of Lim is relied upon as above in claim 13. Oae in view of Lim does not teach that the coupling portion of the rotor bushing includes positioning projections projected toward the rotor frame as one body; the coupling portion of the rotor bushing includes fastening pass through holes for fastening to the rotor frame with bolts; or that the rotor bushing further includes a reinforcing rib at least one of the engagement portion or the coupling portion.

However, the configuration of the claimed bearing is a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed bearing is significant thereby achieving

the predictable result of coupling the drum shaft to the rotor. See MPEP 2144.04 IV, B. See also *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Regarding claim 17, Oae in view of Lim is relied upon as above in claim 14. Oae does not teach that the drum shaft and rotor bushing have serrations for engaging with one another.

Lim teaches that the rotor bushing and drum shaft are connected together by spline (paragraph 64, II. 1-5), a type of serration.

Therefore it would have been obvious to modify Oae with the spline type connection of Lim in order to connect the drum shaft to the rotor bushing thereby allowing electro-mechanical rotation of the shafts of the washing machine.

16. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Application EP 1,386,995 to Oae et al (Oae) in view of U.S. Patent Application Publication No. 20030131636 to Lim et al. (Lim) further in view of U.S. Patent Application Publication No. 20040163428 to Kim et al. (Kim).

Regarding claim 18, Oae in view of Lim is relied upon as above in claim 14. Oae in view of Lim does not teach that the rotor bushing is made of plastic.

Kim teaches a washing machine (paragraph 3, II. 1-2) wherein the rotor bushing is made of plastic (paragraph 79, II. 1-5).

Because both Oae in view of Lim and Kim teach washing machines with rotor bushings, it would have been obvious to substitute the bushing of Oae in view of Lim with the bushing made of plastic as in Kim in order to achieve the predictable result of

coupling the shaft to the rotor and allowing electro-mechanical rotation of the shafts of the washing machine.

17. Claims 19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Application EP 1,386,995 to Oae et al (Oae) in view of U.S. Patent Application Publication No. 20040163428 to Kim et al. (Kim).

Regarding claim 19, Oae is relied upon as above in claim 1. Oae does not teach that the washing machine has a spider.

Kim teaches a washing machine (paragraph 3, ll. 1-2) wherein affixed to the rear wall of the drum is a spider (Fig. 14, parts 2 and 10) and that the shaft (drum shaft, Fig. 14, part 4) has a flange and that everything is connected with a fastening member (Fig. 14, unlabeled see near part 200) wherein one of ordinary skill realizes that the spider helps reinforce the base of the drum.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the washing machine of Oae with the spider, flange, and fastening member of Kim in order to reinforce the base of the drum.

Regarding claim 22, Oae is relied upon as above in claim 1. Oae does not teach that the washing machine has a brushless DC (BLDC) motor.

Kim teaches a washing machine (paragraph 3, ll. 1-2) wherein the washing machine uses a BLDC motor (paragraph 28, ll. 1-6) to perform the washing cycle.

Because both Oae and Kim teach motors for washing machine it would have been obvious to substitute the motor of Oae with the BLDC motor of Kim in order to

achieve the predictable result of using said motor to perform a washing cycle in the washing machine.

18. Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Application EP 1,386,995 to Oae et al (Oae) in view of U.S. Patent No. 3,373,485 to Nelson.

Regarding claims 25-27, Oae is relied upon as above in claim 6. Oae does not teach that the drum shaft is made of a material capable of being chrome plated (SM45 group material) and that the surface of shaft is chrome plated.

Nelson teaches rotor and shaft assemblies of dynamoelectric machines, especially washing machines (col. 1, ll. 12-17) wherein the shaft may be chrome plated steel for corrosion resistance (col. 1, ll. 32-39).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the washing machine of Oae with the chrome plated steel shaft of Nelson in order to prevent said shaft from corroding.

19. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Application EP 1,386,995 to Oae et al (Oae) in view of U.S. Patent No. 2,734,366 to Dunn et al. (Dunn).

Regarding claim 28, Oae is relied upon as above in claim 6. Oae does not teach that the drum shaft is made of stainless steel.

Dunn teaches a washing machine (col. 1, ll. 15) wherein the shaft is made of stainless steel (col. 2, ll. 43-45) wherein one of ordinary skill realizes that a stainless shaft will have a longer service life due to increased corrosion resistance.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the washing machine of Oae with the stainless steel shaft Dunn in order to prevent said shaft from corroding thereby increasing the shafts service life.

20. Claims 33-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Application EP 1,386,995 to Oae et al (Oae).

Regarding claims 33-36, Oae is relied upon as above in claim 29. Oae does not teach that the washing fins have a maximum height of 5 to 15% of an outside diameter of the pulsator, wherein the pulsator has an outside diameter of around 50 to 80% of an inside diameter of the drum, and wherein the drum and tub have axes tilted by 10 to 30 degrees from ground. Oae does teach that the pulsator is rotatably mounted on an inside circumferential surface of the drum (Fig. 1, part 7).

While Oae discloses the claimed invention except for ranges for the height of the fins along with the diameter of the pulsator and the degree of tilt of the drum and tub, it would have been obvious to one skilled in the art at the time of invention to use the claimed range of claims 33-35, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum workable ranges involves only routine skill in the art. See MPEP 2144.05, II, A.

21. Claim 37 rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Application EP 1,386,995 to Oae et al (Oae) in view of Japanese Patent Application Publication No. 2002315985 to Fukui et al. (Fukui).

Regarding claim 37, Oae is relied upon as above in claim 1. Oae does not teach that the washing machine has lifters on the inside circumferential surface of the drum for lifting up the laundry and that the lifters are spaced away from the pulsator by approximately 30 to 90 mm.

Fukui teaches a washing machine (Fig. 1, part 1) wherein the main baffle (lifters, Fig. 1, part 20) is spaced on the drum (Fig. 1, part 6) away from the auxiliary baffles (pulsator, Fig. 1, part 21) wherein one of ordinary skill realizes that the lifters lift the laundry to agitate said laundry and better clean the laundry.

Therefore it would have been obvious to one of ordinary skill in the art to modify the washing machine of Oae with the lifters of Fukui in order to better agitate and clean the laundry.

Oae in view of Fukui does not teach that the lifters are spaced from the pulsator by approximately 30 to 90 mm.

While Oae in view of Fukui discloses the claimed invention except for ranges for spacing of the pulsator from the lifters of 30 to 90 mm, it would have been obvious to one skilled in the art at the time of invention to use the claimed range of claim 37, since it has been held that where the general conditions of a claim are disclosed in the prior

art, discovering the optimum workable ranges involves only routine skill in the art. See MPEP 2144.05, II, A.

22. Claims 38-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Application EP 1,386,995 to Oae et al (Oae) in view of U.S. Patent Application Publication No. 20030046962 to Sonoda et al. (Sonoda).

Regarding claims 38-41, Oae is relied upon as above in claim 1. Oae does not teach that the washing machine has auto-balancers mounted on a front and a rear of the drum for reducing vibration in spinning, wherein the auto-balancers have a ring shape with a single fluid chamber, are arranged to form concentric circles at least double structured and the auto-balancer has a height greater than a width.

Sonoda teaches a drum type washing machine wherein the drum is horizontal or inclined (paragraph 1, II. 1-4) comprising liquid holding chambers (auto-balancers, Fig. 1, parts 36), wherein said chambers are positioned at the front and the rear of the drum; wherein said chambers have height greater than a width (see Fig. 1, parts 36); wherein said chambers have a single fluid chamber (paragraph 41, II. 1-8); wherein the chambers are circumferentially arranged about the drum (ring shape, concentric circles and double structured; paragraph 37, II. 1-5) in order to balance the weight of the drum (paragraph 57, II. 4-11).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the washing machine of Oae with the liquid holding chambers of Sonoda in order to balance the weight of the drum.

Allowable Subject Matter

23. Claims 2, 9-10, 20-21, and 23-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 2, 9-10, and 23-24, the prior art does not anticipate or make obvious a washing machine in combination with a pulley connected to a pulsator wherein said pulley has a braking force applied to control rotation of said pulsator.

Regarding claims 20-21, Examiner has considered these claims to be dependent upon claim 2 and said claims will be allowable if rewritten in independent form including all of the limitations of the base claim 1 along with intervening claim 2.

24. Claims 42-45 are allowed.

Regarding claims 42-45, the prior art does not anticipate or make obvious a washing machine in combination with a pulley connected to a pulsator wherein said pulley has a braking force applied to control rotation of said pulsator.

Conclusion

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BENJAMIN OSTERHOUT whose telephone number is (571)270-7379. The examiner can normally be reached on Monday-Thursday 8:30am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Barr can be reached on (571)272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Joseph L. Perrin/
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/BLO/

Benjamin L. Osterhout
18 May 2010